

Solid-State Recording Technology and Future JPL Missions

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Future space programs place a variety of needs on storage technologies. At one extreme are the needs of missions to the farthest reaches of the solar system which require extremely compact ultra-low power storage media capable of high fidelity storage of data for several years (ten or more) in a space radiation environment. These systems must store 1 to 10 Gbytes of data, may acquire data at rates ranging from a few kilobits per second to several megabits per second and play it back at rates as low as a few kilobits per second or less.

At the other extreme are the needs for earth orbital missions where the data rates and data storage requirements are up to three orders of magnitude higher, but where data is seldom stored for more than a week and power needs are not as stringent.

Other types of missions including missions to the terrestrial planets, astrophysics missions to near earth space have requirements that are typically somewhere in between these extremes.

NASA and JPL are addressing their needs for data storage by looking to industry for developed technologies particularly in the area of packaging for survival and operation in the space environment and a judicious investment in emerging technologies.

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